

### **REMARKS**

Claims 1-6, 9-14, 16, 18, 19, 21-31 and 33-44 remain in the application. By this amendment, claims 7, 8, 15, 17, 20 and 32 have been canceled and claims 1, 9, 10, 11, 19, 23 and 43 have been amended to more clearly define the invention. In addition, paragraph 30 of the specification has been amended. The present application as originally filed supports these amendments. No new matter has been added.

#### **Rejection of Claims 43 and 44 under 35 U.S.C. § 112**

Claims 43 and 44 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. More particularly, the examiner stated that claims 43 and 44 contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed inventions. Issue is taken with that position.

Claim 43 claims a sample cell having a height of the cell defined between the end walls which is relatively small compared to a width of the cell defined by the side wall. Claim 44 depends from claim 43 and recites a limitation that the width of the cell is at least twenty times greater than the height of the cell.

Applicants respectfully submit that the limitations of claims 43 and 44 are shown in the drawing figures of the present application as originally filed. FIG. 1 as originally filed in the present application shows one exemplary embodiment of the present invention. As shown in FIG. 1, the side wall 14 of the sample cell 12 has a height that is relatively small compared to a width of the cell 12. Moreover, actual measurements taken of the drawing using a ruler provide that the width of the cell 12 is about 20 centimeters, while the height of the side wall 14 is about 0.4 centimeters – a ratio of 20 to 1. FIG. 7 also shows a sample cell 12 wherein the side wall 14 of the sample cell 12 has a height that is relatively small compared to a width of the cell 12.

An applicant may show possession of an invention by disclosure of drawings or structural chemical formulas that are sufficiently detailed to show that applicant was in possession of the claimed invention as a whole. See, e.g., *Vas-Cath*, 935 F.2d at 1565, 19 USPQ2d at 1118

("drawings alone may provide a 'written description' of an invention as required by Sec. 112"); *In re Wolfensperger*, 302 F.2d 950, 133 USPQ 537 (CCPA 1962) (the drawings of applicant's specification provided sufficient written descriptive support for the claim limitation at issue); *Autogiro Co. of America v. United States*, 384 F.2d 391, 398, 155 USPQ 697, 703 (Ct. Cl. 1967) ("In those instances where a visual representation can flesh out words, drawings may be used in the same manner and with the same limitations as the specification.").

Also, in the summary of the disclosure as originally filed, applicants disclosed an embodiment of the invention having a height substantially equal to a source length, which, as appreciated in the prior art, is relatively small.

Applicants, therefore, respectfully submit that claims 43 and 44 contain subject matter that was described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention, and that claims 43 and 44 comply with the written description requirement of the first paragraph of 35 U.S.C. § 112. Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 112.

**Rejection of Claims 1-6, 9, 11, 13, 14, 16, 18, 19, 21, 23, 24, 26-28, 30, 31 and 33-41 under 35 U.S.C. § 103(a)**

Claims 1-6, 9, 11, 13, 14, 16, 18, 19, 21, 23, 24, 26-28, 30, 31 and 33-41 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,220,402 to Harvey in view of U.S. Patent No. 5,818,578 to Inman et al.

Claims 1 and 23 are independent claims, and claims 2-6, 9, 11, 13, 14, 16, 18, 19, 21, 24, 26-28, 30, 31 and 33-41 depend directly or indirectly from claims 1 and claim 23.

Independent claims 1 and 23 both recite an absorption spectroscopy apparatus comprising a sample cell including an axis, a side wall having a curved reflective surface arrayed about the axis and facing inwardly with respect to the cell such that a beam of energy directed against a predetermined location on the reflective surface is reflected back and forth off the reflective surfaces and remains in substantially the same plane while inside the cell. As amended, each of

claims 1 and 23 also recite end walls closing ends of the side wall of the sample cell and having flat reflective surfaces facing inwardly with respect to the cell and lying in a plane extending substantially perpendicular to the axis of the cell. As amended, each of claims 1 and 23 further recite that the cell has a height measured in a direction parallel to the axis substantially equal to a source length, and an energy path in the cell is substantially perpendicular to the cell axis.

Applicants respectfully submit that independent claims 1 and 23 are patentable over both Harvey and Inman et al., whether considered alone or in combination, since neither Harvey nor Inman et al. disclose or suggest a sample cell including end walls having flat reflective surfaces lying in a plane extending substantially perpendicular to an axis of the cell.

Instead Harvey discloses a cell comprising an annular or circular side wall (12a), a bottom wall (12b), and a top wall (12c), which are not flat. Harvey does not disclose or suggest end walls having flat reflective surfaces facing inwardly with respect to the cell and lying in a plane extending substantially perpendicular to the axis of the cell, as recited by independent claims 1 and 23 of the present application. In view of the disclosure in column 2, lines 7 to 20 in Harvey (the part, as pointed out by the examiner, which discloses end walls (12b and 12c)), a person skilled in the art should appreciate that, in the embodiment disclosed in Harvey, only the circular surface on the side wall is reflective, but not the surfaces on the end walls. Furthermore, the inner surfaces of the bottom wall and the top wall in Harvey have slanted surfaces, such that the central portion of the circular wall is considerably thicker than the peripheral portion.

Inman et al. discloses a polygonal planar multipass cell having a sample region (301) circumscribed by a plurality of walls (302), each wall being substantially planar. Inman et al. also does not teach or suggest a cell having end walls with substantially flat reflective surfaces facing inwardly with respect to the cell and lying in a plane extending substantially perpendicular to an axis of the cell, as recited by independent claims 1 and 23 of the present application.

Accordingly, Harvey and Inman et al. do not anticipated or render obvious the invention as recited in independent claims 1 and 23 of the present application, whether these references are considered alone or in combination. Applicants respectfully submit that claims 1 and 23 are patentable over Harvey in view of Inman et al., and respectfully request the reconsideration and

withdrawal of the rejection of claims 1-6, 9, 11, 13, 14, 16, 18, 19, 21, 23, 24, 26-28, 30, 31 and 33-41 under 35 U.S.C. § 103(a) as being unpatentable over Harvey in view of Inman et al.

**Rejection of Claims 10, 12, 22, 25, 29, and 42 under 35 U.S.C. § 103(a)**

Claims 10, 12, 22, 25, 29, and 42 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Harvey in view of Inman et al., and further in view of U.S. Patent No. 5,726,752 to Uno et al.

Claims 10, 12, and 22 depend from independent claim 1, and Claims 25, 29, and 42 depend from independent claim 23. As discussed above, independent claims 1 and 23 are novel and non-obvious over Harvey and Inman et al., because neither Harvey nor Inman et al. disclose or suggest a sample cell including end walls having substantially flat reflective surfaces facing inwardly with respect to the cell and lying in a plane extending substantially perpendicular to an axis of the cell.

Uno et al. also does not teach or suggest a cell including end walls having substantially flat reflective surfaces lying in a plane extending substantially perpendicular to the axis of the cell. Instead, as shown for example in Figure 5 of Uno et al., there is disclosed a sample cell having end walls 55' with reflective surfaces 69 wherein the reflective surfaces are oriental at an angle. Therefore, independent claims 1 and 23, and dependent claims 10, 12, 22, 25, 29, and 42, are not disclosed or suggested by Harvey, Inman et al., or Uno et al., whether these references are considered alone or in combination.

Applicants accordingly respectfully request reconsideration and withdrawal of the rejection of claims 10, 12, 22, 25, 29, and 42 under 35 U.S.C. § 103(a) as being unpatentable over Harvey in view of Inman et al., and further in view of Uno et al.

**Rejection of Claims 43 and 44 under 35 U.S.C. § 103(a)**

Claims 43 and 44 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Harvey in view of Inman et al., and further in view of U.S. Patent No. 5,485,276 to Bien et al.

Claims 43 and 44 depend from independent claim 23. As discussed above, independent claim 23 is novel and non-obvious over Harvey and Inman et al., because neither Harvey nor Inman et al. disclose or suggest a sample cell including end walls having substantially flat reflective surfaces facing inwardly with respect to the cell.

Bien et al. also does not teach or suggest a cell having that limitation. Instead, Bien et al. discloses a sample cell having open ends 28, 30. Therefore, independent claim 23, and dependent claims 43 and 44, which depend from claim 23, are not disclosed or suggested by Harvey, Inman et al., or Bien et al., whether these references are considered alone or in combination.

Applicants accordingly respectfully request reconsideration and withdrawal of the rejection of claims 43 and 44 under 35 U.S.C. § 103(a) as being unpatentable over Harvey in view of Inman et al., and further in view of Bien et al.

### **Conclusion**

Applicants, accordingly, respectfully submit that in view of the preceding amendments and arguments, claims 1-6, 9-14, 16, 18, 19, 21-31 and 33-44 are patentable over the cited references, whether the references are considered alone or in combination, and respectfully request an indication of allowance of these claims. If a telephone conference will expedite prosecution of the application the Examiner is invited to telephone the undersigned.

Serial No.: 10/081,655  
Examiner: Shun K. Lee  
Reply to Office Action of September 11, 2003

The Commissioner is hereby authorized to charge any additional fees, or credit any overpayment, be due in connection with the filing of this paper to our Deposit Account No. 50-1133.

Respectfully submitted,  
McDermott, Will & Emery

Date: 5-9-04

A handwritten signature in black ink, appearing to be 'MGL', written over a horizontal line.

Mark G. Lappin, P.C., Reg. No. 26,618  
Jeffrey J. Miller, Reg. No. 39,773  
Attorneys for Applicants  
28 State Street  
Boston, MA 02109-1775  
Telephone: (617) 535-4000  
Facsimile: (617) 535-3800